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Predicting self-reported drink driving among middle-aged women

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Abstract

A substantial and sustained increase in the proportion of drink drivers that is female is observed in many parts of the motorised world. Given this trend, a better understanding of the factors that influence drink driving among women is needed. The current study investigated drink driving among middle-aged women, a relatively under-researched group of female drink drivers. A total of 781 women (age; $M = 51.36$, $SD = 4.29$ years) completed a cross-sectional survey measuring a number of alcohol beliefs and drink driving. Among the included alcohol beliefs, viewing alcohol as a form of social enhancement as well as higher perceived heavy episodic drinking among same-aged women and greater acceptability toward this consumption pattern significantly increased the likelihood of self-reported drink driving. However, after adjusting for harmful consumption patterns, only alcohol as form of social enhancement remained significant. These results indicate that middle-aged women who engage in harmful alcohol consumption are more likely to drink drive, but also that the social aspect of drinking is a risk factor. Targeting both harmful consumption patterns as well as alcohol beliefs that are held by middle-aged women may reduce the incidence of drink driving in this group.

Key words: drink driving, middle-age, women, alcohol beliefs, harmful alcohol consumption

1.1 Introduction

The absolute numbers and/or the proportion of drink drivers that is women are increasing in several European countries as well as in Australia and USA (Armstrong, Watling, Watson, Davey, 2014; Ministry of Justice, n.d.; Statistics Denmark, n.d.; The Swedish National Council for Crime Prevention [BRÅ], n.d.; Tsai, Anderson, & Vaca, 2010). These findings have been observed in statistics collected over several decades as well as in the latest available data. While men are still more likely to drink drive overall, these trends mean that drink driving is increasingly becoming a female problem. Several proposed explanations for women's increasing participation in drink driving has been put forward, including increased road exposure, alcohol consumption, and risk taking behavior as well as changing attitudes toward women's alcohol use in general (Beuret, Corbett, & Ward, 2014; Robertson, Liew, & Gardner, 2011; Romano, Kelley-Baker, & Voas, 2008). However, research aimed at understanding drink driving from a uniquely female perspective is still in its infancy. In particular, there has been a dearth of research investigating drink driving among middle-aged and older women.

Drink driving rate among middle-aged women show some variation across countries. In Sweden, for instance, 2015 statistics show that drink driving prevalence peaks in middle-age among both men and women (BRÅ, n.d.). Conversely, UK survey data and jurisdictional driving apprehension data from Australia show that drink driving occurs more often among younger than older drivers (Armstrong, 2013; Beuret et al., 2014); around 19% of all female drink drivers are aged 40–49 years in both these countries. In comparison, women aged 18–29 and 17–29 years make up 27% and 47% of apprehended drivers in the UK and in Australia, respectively. However, statistics also show that the increase that has been observed in female drink driving is occurring among middle-aged drivers as well as

among younger drivers (BRÅ, n.d.¹). Police drink driving apprehension data from the Australian state of Queensland (Queensland Police Service, 2012)² suggest a more rapid than average increase in drink driving in the age groups 40–49 and 50 years+. Compared to an increase of 7.79% for all drivers over an 11 year period, the female proportion of drink drivers in these age groups has increased 9.41 and 10.67%, respectively.

1.1.1 Understanding Drink Driving

Drink driving is more common among both young and older drivers with problematic alcohol use. For instance, drink driving is around 8 to 20 times more likely among drivers that regularly engaged in heavy episodic drinking (HED) compared to those that do not (Flowers et al., 2008; Naimi et al., 2003)³. Alcohol use problem indicators such as the Alcohol Use Disorder Identification Test (AUDIT) (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001) and the CAGE (Ewing, 1984) have also been linked to increased drink driving propensity (Bertelli & Richardson, 2007; Wells-Parker, Williams, Dill, & Kenne, 1998).

While problem drinking influences drink driving for all cohorts of drivers, the alcohol beliefs that influence consumption, and potentially drink driving as a consequence, are likely be different across different demographic groups (Heath, 1995). As such, an understanding of these beliefs could offer important insights into the drink driving risk factors that are unique to middle-aged women. One type of alcohol beliefs that differ between older and younger people is alcohol norms; previous research has shown that alcohol norms are more stringent for women than for men, with some research indicating that this is

¹ Trends accessed from 1995 to 2015

² This dataset contained information for all drivers who were apprehended with an illegal BAC as part of the Queensland Roadside Breath Testing (RBT) legislative framework from 1 January 2000 to 31 December 2011 (see Armstrong et al., 2014 for an overview).

³ HED (binge drinking) was defined as ≥ 5 drinks for men and ≥ 4 drinks for women by Flowers et al. and as ≥ 5 drinks for both men and women by Naimi et al.

particularly true for middle-aged and older women (Allamani, Voller, Kubicka, & Bloomfield, 2000; Van Wersch & Walker, 2009). As such, alcohol norms are a group of alcohol beliefs that may serve as a protective factor against drink driving in middle-age. Several types of norms have previously been linked to consumption patterns, such as personally held acceptability of consumption (injunctive norms), perceived acceptability of others toward consumption (perceived injunctive norms) and the perceived typical consumption of others (perceived descriptive norms) (Berkowitz, 2004).

In addition to alcohol norms, beliefs regarding the meaning and role of alcohol may also distinguish younger from older women. Qualitative research has shown that among young people, alcohol is more often understood as an intoxicant through which a state of bodily pleasure can be ascertained. Intoxication and drunkenness, for some young people, becomes an activity and a goal in of itself (Fry, 2011; Measham & Brain, 2005). As women grow older, the role and meaning of alcohol often changes and become more focused on taste, relaxation, and delineation between work and rest than heavy intoxication (Lyons, Emslie, & Hunt, 2014). As with alcohol norms, the shifting nature of alcohol's role and meaning with age is likely to influence how alcohol is used. By extension, these beliefs may therefore prove to be important factors in explaining drink driving propensity, either directly or indirectly through their link to consumption patterns.

While examinations of drink driving among middle-aged women have been sparse, a recent interview study of convicted female drink drivers found that the reasons for drinking before driving were different for young women, mothers of young children, and older women (Robertson, Holmes, & Marcoux, 2013). This study found that participants with young children often had been drinking to cope with depression or isolation and older women to cope with negative life-events such as divorce or parental death, young women's drinking had commonly taken place at parties and as a response to social pressure and a desire to fit in.

Studies such as this point to the disparate influences on the alcohol use behind drink driving and highlight the need to continue research in this area to better understand drink driving among middle-aged women.

1.1.2 The Current Study

The main aim of the present study was to examine drink driving in a sample of middle-aged (45–59 years) women residing in Australia. Specifically, the study investigated the relationship between the role and meaning of alcohol, alcohol norms, harmful alcohol use, and self-reported drink driving prevalence using a cross-sectional survey design.

1.2 Method

1.2.1 Participants

The sample for this research was drawn from a larger survey study conducted in 2014 (Watling, Armstrong, & Davey, manuscript under review). This larger study investigating the link between alcohol beliefs and harmful alcohol use among middle-aged women who were current drinkers (at least one drink in the past 30 days). Participants were recruited through a national media release and were offered a chance to win an AUD50 gift voucher after filling in the survey online. A total of 1,035 participants were recruited. Among these, 202 participants who had missing values driving status or drink driving propensity were removed. A further 52 participants who indicated that they were not currently drivers (one hour or more per week) were also removed from the data set resulting in a final sample of 718 women. The age range of participant in this subsample was 45–59 years with a mean age of 51.42 years ($SD = 4.31$). Just over half of the sample (55.01%) worked full-time, around a quarter (26.70%) worked part-time, and 5.21% were engaged in domestic work (stay at home mothers or carers). The remaining participants were studying, unemployed, or

retired. The majority (76.57%) of participants was in a relationship (either de-facto/married or in a relationship but not living together). Almost 4/5 (78.97%) of the sample had attained a university degree and the median monthly household income bracket was AUD 4,001–6,000. The majority of the sample (98.57%) had a current drivers' licence and the women drove, on average, 8.60 hours ($SD = 7.34$, $Mdn = 7.0$, range = 1–60) per week.

1.2.2 Measures

1.2.2.1 Demographics and Control Variables

Participants completed a number of demographic questions regarding age, relationship status, employment, socio economic status (SES), drivers' licence status, and average hours of weekly driving. SES was defined and measured as monthly income bracket (AUD 0–2,000 to AUD 18, 000+) and highest completed level of education (primary school, high school, or university).

1.2.2.2 Alcohol Beliefs

Norms toward two drinking patterns, HED and Moderate but Frequent Drinking (MFD) were measured. As outlined above, HED has previously been linked to drink driving. However, HED typically decreases with age among women, while MFD becomes more common (Australian Institute of Health and Welfare, 2014)⁴. As such, it was considered of relevance to measure norms around MFD as well as HED.

In total, five items measured alcohol norms. HED Actual Injunctive and HED Perceived Injunctive norms were measured by asking participants to respond to the following question; “How acceptable is it for women your age to drink a bottle wine or equivalent on a

⁴ HED (defined as ≥ 5 standard drinks) show an overall decreases with age (online table 4.5) while consumption frequency increases (online table 4.6).

single occasion?” Participants were asked to state what they thought (i.e., actual injunctive norms) and what the “average Australian person” would think (i.e., perceived injunctive norms). To measure MFD Actual Injunctive and MFD Perceived Injunctive norms, participants were then asked to respond to the item “How acceptable is it for women your age to drink moderately (e.g., one or two glasses of wine) most days of the week?” Again, the respondents indicated what they thought and what the average Australian person would think. Responses to these items were measured on a 5-item Likert scale (1 = *Unacceptable*, 5 = *Acceptable*). Additionally, the perceived frequency of HED (> 60 g of pure alcohol) among same age women was measured with the item; “How often do you think a typical woman your age has six or more drinks on one occasion?” This item tapped HED Descriptive norms and responses were measured on an ordinal scale (1 = *Never*, 2 = *Less than Monthly*, 3 = *Monthly*, 4 = *Weekly*, and 5 = *Daily or almost daily*).

The role and meaning of alcohol was measured using the Role and Meaning of Alcohol Questionnaire–Mature-aged Women (RMAQ–MW), a newly developed measure designed to tap the perceived meaning and role of alcohol in middle-age. The measure was constructed and reviewed as part of a dissertation examining the many ways in which alcohol is understood among middle-aged women. Items for the questionnaire were generated from a series of in-depth interviews with women aged 45–59 years. From these interviews, several themes were developed through an iterative and peer-reviewed process. The themes included, for instance, the understanding of alcohol as a social activity, as a means to gain physical enjoyment (e.g., to relax and to enjoy the taste), as a means to self-medicate, and as a demarcation between work and rest. To capture the wide range of meanings attributed to alcohol, the RMAQ–MW was designed to be a multi-component measure; items capturing each of the different themes were written, drawing on the language and examples used by the participants. Items were subsequently subjected to an exploratory factor analysis, resulting in

a measure with 13 factors (subscales). In the current sample, 11 of these subscales had acceptable internal reliability and were included for further analysis: An overview of the subscales and their internal consistency can be found in Table 1. Overall, the subscales of the RMAQ–MW have been found to correlate to drinking patterns expected directions (Watling & Armstrong, manuscript under preparation). For instance, the subscale Self-medication (measuring the notion of alcohol as a means to escape negative emotions) is associated with increased scores on the AUDIT and subscales measuring positive aspects of alcohol use (e.g., Relaxation and Pleasure, Self-indulgence, and Food and Taste) is associated with greater drinking frequency, while the opposite pattern is found for subscales measuring negative aspects (e.g., Loss of Control and Aggression). Items were scored on a 5-point Likert scale (1 = *Strongly Disagree*, 5 = *Strongly Agree*) and subscale scores were averaged.

Table 1.

RMAQ–MW Subscales

Factor name	Subscale description	Chronbach's alpha
Self-medication	Alcohol is a means to reduce negative emotions such as stress, loneliness, and shyness	.92
Loss of control and aggression	Alcohol makes people lose control and become aggressive	.95
Relaxation and pleasure	Alcohol is associated with relaxation and pleasure	.82
Interpersonal closeness	Alcohol is used to create interpersonal closeness and romance, and to nurture friendships	.92
Unschooling drinking	Intoxication is a sign of immaturity and is shameful for middle-aged women	.75
Coming of age	Purposeful intoxication is a rite of passage for young people	.82
Self-indulgence	Alcohol is a reward, a treat, and a form of self-indulgence	.85
Social enhancement	Alcohol is used to feel participate in and enhance social situations	.87
Hospitality and friendship	Alcohol symbolises friendship and hospitality	.75
Food and taste	Alcohol consumption is a taste experience	.70
Work and leisure	Alcohol delineate work and responsibilities from rest and enjoyment	.82

1.2.2.3 Harmful Alcohol Consumption

The AUDIT was used to measure harmful alcohol consumption. The AUDIT is a ten-item measure developed by the World Health Organization (Babor et al., 2001) that is designed to identify harmful or hazardous drinking drinkers. The scale contains three questions on alcohol consumption (e.g., "How often do you have a drink containing alcohol?"), three questions on drinking behaviour and dependence (e.g., "How often during the last year have you found that you were not able to stop drinking once you had started?"), and four questions on alcohol problems (e.g., "Have you or someone else been injured because of your drinking?"). The total test scores range from 0–40, where higher scores

indicate a higher probability of harmful consumption. A score of 8 is typically used to identify risky drinkers; however, the scale authors acknowledged that a lower score may be more appropriate for some subpopulations such as women. In the current research, a cut-off score of 6 was used in the current study to identify risky drinkers, as this score has previously been found to yield optimum sensitivity and specificity in a sample of middle-aged women (Aalto, Tuunanen, Sillanaukee, & Seppä, 2006). The AUDIT is a well-established measure with documented psychometric properties. Predictive validity has been established against a number of measures of problematic alcohol use and reviews of the measure have found average reliability coefficients of .83 (Reinert & Allen, 2007) and .81 (Shields & Caruso, 2002).

1.2.2.4 Drink Driving

Self-reported drink driving propensity was measured by one item; “How many times in the past 12 months have you driven a motor vehicle (e.g., a motorcycle or car) when you might have been over the legal blood alcohol limit for your licence?”, with response alternatives ranging from 0 times to more than 40 times.

1.3 Analysis

Descriptive statistics were calculated to describe the demographic characteristics of the sample. To meet the aim of this study, bi-variate correlations and sequential binomial logistic regression analyses were calculated to investigate the relationship between alcohol beliefs, harmful alcohol consumption and self-reported drink driving. The use of logistic regression was prompted by a strong positive skew of the outcome variable, which made the data unsuitable for multiple regression analysis. To enable logistic regression analysis, the outcome variable was dichotomised (no drink driving vs. drink driving). Based on the observation that middle-aged women’s drink driving rates are increasing, the current research

aimed to examine factors that predict middle-aged women's drink driving in general rather than factors that influence recidivism in this group. As such, this dichotomisation of the outcome variable was deemed theoretically appropriate. The alcohol beliefs were entered in the first step of the logistic regression model (no significant correlations were found between the control and outcome variable). The AUDIT was entered in the second step to adjust for consumption patterns.

1.4 Results

1.4.1 Descriptive Statistics and Correlations

The AUDIT score in the current sample ranged from 1–35, with an average score of 8.38 ($SD = 6.00$). Of the total sample, 56.21% scored 6 or higher on the AUDIT, thus being classified as risky drinkers. Appropriate population comparisons are difficult to obtain for AUDIT scores, as the current study included a specific subsample of middle-aged women (i.e., drinkers only) and used a rather stringent cut-off score. However, in previous samples (including both drinkers and non-drinkers), AUDIT mean scores of 3.6, 3.97, and 2.68 have been found among women aged 40 year, 45–55 years, and 56–65, respectively (Aalto et al., 2006; Mathiesen, Nome, Richter, & Eisemann, 2013). Moreover, with a cut-off score of 8, risky drinking has been identified in 8% of a population sample of Australian women aged 15–85+ years (Fleming, 1996) and a cut-off score of 6 has classified 35.9% of participants as risky drinkers in a Finish sample of 40 year old women (Pahlen et al., 2008).

Drink driving was reported by 20.74% of the sample. In this subgroup, self-reported drink driving had occurred, on average, 4.19 times ($Mdn = 2.0$) in the past 12 months. A medium correlation ($r = .33, p < 0.001$) was found between the AUDIT and self-reported drink driving propensity. No significant relationship was found, however, between average hours of weekly driving and drink driving ($r = -.05, p = .20$), indicating that drink driving

propensity was not related to overall driving exposure. The level of agreement with the alcohol-belief measures and the correlations between these measures and AUDIT and drink driving scores are given in Table 2.

Table 2
Control, Predictor, and Outcome Variables

	<i>M(SD)</i>	Bivariate correlations AUDIT	Bivariate correlations drink driving
<i>Control variables</i>			
Income ^a	–	-.04	-.05
Education ^a	–	-.12**	-.04
Relationship status ^b	–	-.07*	-.04
<i>Norms</i>			
HED Descriptive ^a	–	.23**	.09**
HED Actual Injunctive	2.78(1.47)	.40**	.13**
HED Perceived Injunctive	2.81(1.32)	-.08*	-.01
MFD Actual Injunctive	3.49(1.38)	.28**	.07*
MFD Perceived Injunctive	3.71(1.21)	-.15**	-.03
<i>RMAQ–MW subscales</i>			
Self-medication	3.02(1.08)	.50**	.14**
Loss of Control and Aggression	3.55(0.80)	.03	.04
Relaxation and Pleasure	4.14(0.74)	.08*	-.01
Interpersonal Closeness	2.44(1.02)	.23**	.05
Unschooling Drinking	3.21(1.13)	-.15**	-.04
Coming of Age	2.89(1.08)	.12**	.05
Self-indulgence	3.08(1.02)	.31**	.07
Social Enhancement	3.44(0.94)	.30**	.10**
Hospitality and Friendship	3.53(0.91)	.09*	.04
Food and Taste	3.66(0.81)	-.01	-.06
Work and Leisure	3.41(0.94)	.43**	.10**

^a Spearman's rho

^b Point-biserial coefficient (0 = *Not in a Relationship*, 1 = *In a Relationship*); all other relationships are calculated using Pearson's product-moment correlation.

* $p < 0.05$, ** $p < 0.01$.

Income and education (SES) of participants were included as control variables, and as can be seen in Table 2, both these variables were negatively related to the AUDIT, but showed no relationship with drink driving. Actual Injunctive HED and MFD norms (greater acceptability) were predictably associated with increased harmful consumption and self-

reported drink driving. A similar relationship was found between HED Descriptive norms and AUDIT/drink driving. HED and MFD Perceived Injunctive norms showed an unexpected relationship with the AUDIT; believing that others held positive views of these drinking patterns was linked to decreases in harmful consumption. However, no relationship with drink driving was detected. Social Enhancement and Work and Leisure were significantly associated with both AUDIT and drink driving. Overall, more significant relationships were found between the predictor/control variables and AUDIT than between predictor/control variables and self-reported drink driving.

1.4.2 Multivariate analysis

Variables with significant correlations with self-reported drink driving were entered into a sequential binomial logistic regression model predicting drink driving. Assumption checks revealed that the Self-medication variable violated the linearity of the logit assumption. As such, this variable was dichotomised into disagree (scores of 1–3) and agree (scores of > 3). Moreover, the two response categories *Weekly* and *Daily or Almost Daily* for the variable HED Descriptive was collapsed, due to low cell counts in the latter response category. The new category was named *Weekly or More*. The first step of the regression analysis, which comprised the alcohol-belief items, significantly predicted self-reported drink driving, $\chi^2(8) = 73.20, p < .001$. The model explained 13.98% of the variance (Nagelkerke R^2) in the outcome variable and correctly classified 79.13% of cases. The Hosmer and Lemeshow test was non-significant, $\chi^2(8) = 23.71, p = .88$, indicating that the classification accuracy was adequate. Significant predictors in the model were HED Descriptive (perceived monthly HED among same-aged women compared to never), HED Actual Injunctive, and Social Enhancement. The inclusion of AUDIT in the second step led to an increase in the proportion of predicted self-reported drink driving variance (20.14%, Nagelkerke R^2). The

second step was statistically significant $\chi^2(1) = 34.57, p < .001$, correctly classifying 79.26% of cases. The Hosmer and Lemeshow test was also non-significant $\chi^2(8) = 5.16, p = .74$, indicating a sufficient classification accuracy. Social Enhancement and AUDIT were significant factors in this step, predicting a 52% and 11% increase in risky drinking respectively. Model parameters, standard errors, Odds Ratios, probability values, and confidence intervals can be found in Table 3.

Table 3

Predictors of Self-reported Drink Driving

Variables	B	SE	Wald's	OR	95% CI	
					Lower	Upper
Step 1						
HED Descriptive:						
<i>Never (referent)</i>						
<i>Less than monthly</i>	0.60	0.34	3.02	1.82	0.93	3.56
<i>Monthly</i>	0.75	0.37	4.20*	2.12	1.03	4.37
<i>Weekly or more</i>	0.36	0.45	0.63	1.43	0.59	3.46
HED Actual Injunctive	0.19	0.07	6.83**	1.21	1.05	1.39
MFD Actual Injunctive	0.08	0.08	0.88	1.08	0.92	1.26
Self-medication:						
<i>Disagree (referent)</i>						
<i>Agree</i>	0.29	0.23	1.72	1.34	0.86	2.08
Social Enhancement	0.41	0.13	9.17**	1.50	1.15	1.95
Work and Leisure	0.26	0.14	3.45	1.29	0.99	1.70
Step 2						
HED Descriptive:						
<i>Never (referent)</i>						
<i>Less than monthly</i>	0.57	0.35	2.57	1.76	0.88	3.51
<i>Monthly</i>	0.56	0.38	2.18	1.75	0.83	3.69
<i>Weekly or more</i>	-0.09	0.48	0.04	0.91	0.36	2.32
HED Actual Injunctive	0.09	0.08	1.39	1.09	0.94	1.27
MFD Actual Injunctive	0.06	0.08	0.45	1.06	0.90	1.24
Self-medication:						
<i>Disagree (referent)</i>						
<i>Agree</i>	0.03	0.24	0.01	1.03	0.65	1.63
Social Enhancement	0.42	0.13	9.83**	1.52	1.17	1.97
Work and Leisure	0.09	0.14	0.42	1.10	0.83	1.45
AUDIT	0.10	0.02	33.75***	1.11	1.07	1.15

* $p < .05$, ** $p < .01$, *** $p < .001$

1.5 Discussion

The current study sought to understand factors that influence drink driving among middle-age women. It represents one of only a limited number of studies that have focused on drink driving in this cohort. The relationship between a number of alcohol beliefs (alcohol norms, the role and meaning of alcohol), harmful alcohol use, and self-reported drink driving was examined. Results indicated that the measured alcohol beliefs were more consistently associated with harmful alcohol use than with self-reported drink driving. In a sequential binomial logistic regression, greater acceptability (i.e., Injunctive norms) toward HED,

understanding alcohol as a means to enhance social situations and as a delineation between work and leisure were associated with a significantly increased likelihood of self-reported drink driving. However, after adjusting for harmful alcohol use, only the idea of alcohol as a social enhancer remained significant.

These results indicate that middle-aged women who engage in harmful alcohol consumption are more likely to drink drive; harmful alcohol use was associated with an 11% increase in the likelihood of self-reported drink driving per one unit increase. This finding is in line with previous literature which reports a consistent association between problematic alcohol use and drink driving (Bertelli & Richardson, 2007; Flowers et al., 2008; Naimi et al., 2003; Wells-Parker et al., 1998). However, the current study also found that associating alcohol with social enhancement independently increased the likelihood of self-reported drink driving by 52% per one unit increase. The link between this view of alcohol and self-reported drink driving may be explained by the need to travel home after alcohol-involved social gatherings. Although the circumstances of participants' drink driving events were not recorded in the current study, some support for the importance of social drinking can be found in a recent qualitative study investigating perceptions regarding the BAC limit among Swedish and Australian middle-aged women (Watling & Armstrong, 2015). When asked about their thoughts on reducing the current 0.05% BAC limit to 0.00%, some of the Australian women (but none of the Swedish women) thought that this would be impractical and unjustly restrict their ability to take part in social events. The association between alcohol and sociability in conjunction with the need to have access to convenient transport may thus be a risk factor for drink driving among middle-aged women that is independent of problematic alcohol use; however, further investigation is needed.

Previous findings from Robertson et al. (2013) have shown that drink driving among middle-aged female participants is the result of coping-focused alcohol use. In the current

study, the idea of alcohol as a means to deal with negative emotions (Self-medicate) was related to increased self-reported drink driving at the bivariate level. However, in the logistic regression, this relationship did not remain significant after accounting for the remaining alcohol beliefs (in step one of the model). This was a somewhat surprising finding; while personal acceptability of HED and the perceived prevalence of this drinking pattern among same-aged women shared variance with harmful alcohol use (which in turn was predictive of drink driving), no such relationship could be discerned for the use of alcohol to deal with negative emotions.

Although harmful alcohol use and the idea of alcohol as a social enhancer predicted self-reported drink driving in the current research, a relatively large proportion of variance (just over 79%) remained unaccounted for. While research into middle-aged drink driving is limited, age-specific changes such as increased drinking frequency (Australian Institute of Health and Welfare, 2014) and depressive symptoms (Snowdon, 2001) might, through its link to harmful alcohol use, further explain drink driving in this age group. A better understanding of influential factors such as these is need. Moreover, direct comparisons with male drivers should be conducted to isolate influences that are specific to or more common among middle-aged female drink drivers. It is of key importance that research in this area continues to ensure that a knowledge base for evidence-based interventions is achieved.

1.5.1 Limitations

Comparisons with previous studies where AUDIT scores have been reported in female samples indicate that the sample attained for this study contained a greater than average proportion of risky drinkers. With a larger than expected proportion risky alcohol consumers, the result of this study might not be directly generalisable to the general population of middle-aged Australian women. As drink driving is more common among

drivers with harmful drinking patterns (Davey, Davey, & Obst, 2005; Freeman et al., 2006), the reported prevalence of drink driving in particular should be interpreted with caution. It is also possible that other sample characteristics were disproportional to the general population, which further highlights the need to for caution when generalising the findings from this study.

Moreover, the limitations associated with the use of self-reported drink driving must be considered. This outcome variable requires participants to estimate past BAC levels to identify incidents of possible drink driving. This approach could lead to those driving with legal BAC levels to classify themselves as drink drivers and vice versa. Misclassification could have been reduced by using more accurate measures such as self-reported police apprehensions. However, such measures would have resulted in an underestimation of drink driving in the sample as many drink drivers report driving under the influence without being apprehended (Wilson, Sheehan, & Palk, 2010).

1.5.2 Conclusions

Findings from the present study contribute to knowledge regarding the mechanisms behind middle-aged women's drink driving. The results indicated that alcohol beliefs such as the view of alcohol as a social enhancement could be an important risk factor for drink driving among middle-aged women. It is, however, important that research and policy development continue in this area to reflect the increasing number of middle-aged women that drink drive.

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